

# SNF Project saves with condition-based maintenance

Michele Gerber, FH

As the result of a joint innovation between Fluor Hanford and the Pacific Northwest National Laboratory, the Fluor Hanford Spent Nuclear Fuel Project expects to save \$1 million in maintenance costs over the remaining five-year life of the project.

The new approach, called condition-based maintenance, was customized and applied this year by a team of PNNL researchers who specialize in Decisions Support for Operations and Maintenance, or DSOM, and the SNF Engineering group. DSOM staff members have developed methods to optimize operations and maintenance for industries throughout the United States.

The SNF maintenance program was optimized by employing a risk-based approach to balance the costs of maintenance with the risk of component failure. An evaluation of risks looked at regulatory drivers, mission criticality, secondary hazards, personnel safety issues, operational impacts and other parameters.

PNNL staff members worked with the SNF Engineering group to evaluate 1,535 regular preventive maintenance tasks in the SNF Project, covering more than 5,000 equipment components. They built a matrix of equipment needs, costs and risks. They determined that 22 percent of the regular preventive maintenance tasks could be performed less frequently or eliminated with no adverse impacts to project safety or schedule.

Over 65 percent of the preventive maintenance schedules were unchanged — mostly those involving safety-class equipment, or equipment for which maintenance and inspection regimes are called out in safety analysis documents. Additionally, some equipment was identified that did not have a preventive maintenance schedule, but would benefit from creating one.

“With support from PNNL, we were able to find ways to save costs and thus use funds to accomplish other tasks to help move irradiated fuel away from the Columbia River,” said Don Engelman of the SNF Engineering group. “By utilizing DSOM staff, we in the SNF Project were able to access talented, nearby resources to the benefit of the whole Hanford Site. Our next step will be to look for follow-on savings from a more comprehensive application of the condition-based maintenance program.”

Terry Walton, Technology Management director for FH, said the right-sizing of maintenance tasks was “a great example of teaming efforts between PNNL and FH.”

Last year, FH and PNNL formalized a business partnership in which PNNL performs technology management functions for FH. “This agreement is an on-site bridge,” said Walton. “Technology management here at Hanford involves a lot more than just creating new widgets. It leverages PNNL’s scientific and technical expertise to directly aid FH cleanup projects.” The program is also assisting the SNF Project with fuel reactivity studies, safety analysis work and sludge investigations. ♦



**Fluor Hanford Nuclear chemical operators Robert Crow, left, and Raul Ramirez test new process equipment to speed production in K West Basin. The new equipment has been operating since Aug.1.**